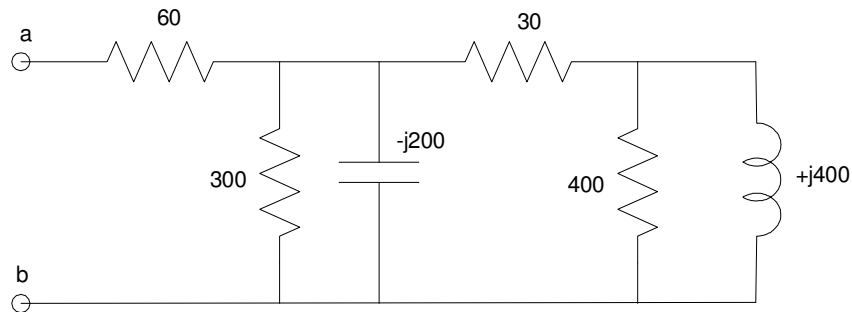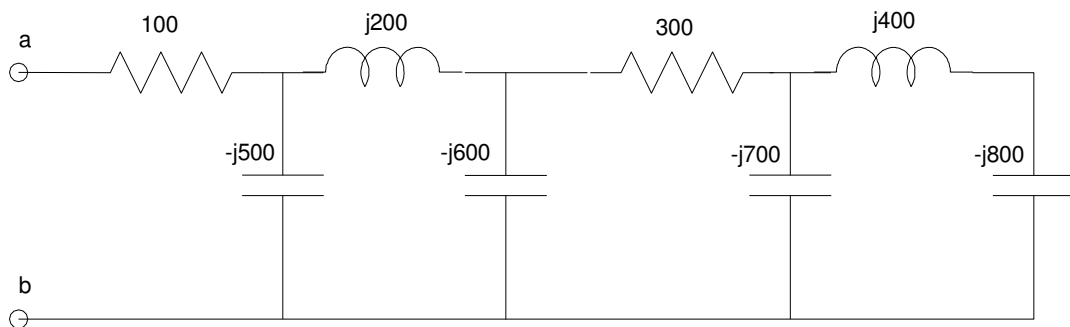# ECE 320 - Homework #1

EE 206 Review, Phasors. Due Wednesday, Janyary 18th
Please submit as a hard copy or submit on BlackBoard

Resistors in series and parallel

1) Determine the impedance: Zab

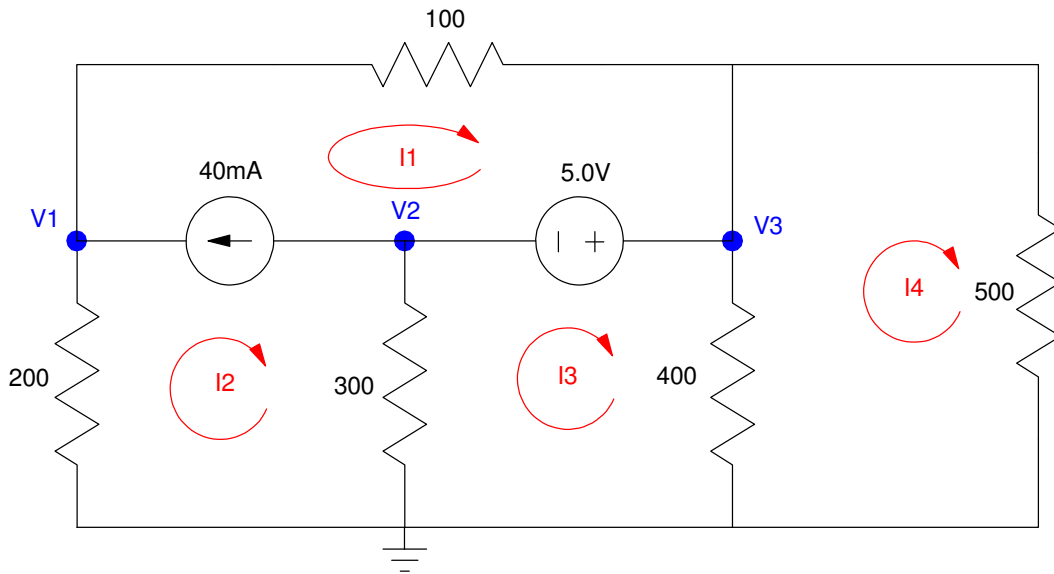2) Assume -jX = -j100. Determine the resistance Rab (it will be a complex number)

Voltage Nodes & Current Loops

3) (Voltage Nodes): For the following circuit

- • a) Write the voltage node equations
- • b) Solve using Matlab (or similar program)
- • c) Check your answers in CircuitLab (or similar circuit simulator)

4) (Current Loops) For the following circuit

- • a) Write the current loop equations
- • b) Solve using Matlab (or similar program)
- • c) Check your answers in CircuitLab (or similar circuit simulator)

Problem 3 & 4

5) Assume Vin contains a DC and AC signal:

$$V_1 = 10 + 4\sin(600t)$$

- • a) Determine the voltage, V2, using phasor analysis
- • b) Check your answer using CircuitLab (or similar program)